

# TECHNICAL INFORMATION AND SERVICE DATA



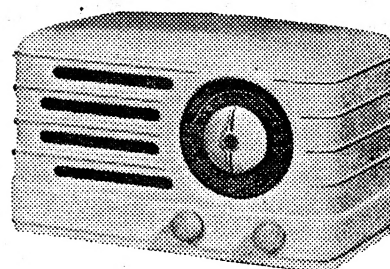
## RADIOLETTE

Models 507-M, 507-MY & 508-M

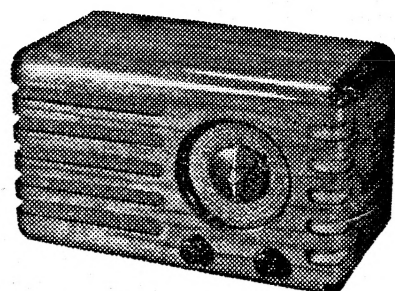
FOUR VALVE, BROADCAST,  
VIBRATOR-OPERATED SUPERHETERODYNES

ISSUED BY  
AMALGAMATED WIRELESS (A/SIA.) LTD.

507-M, 507-MY, 508-M



507M and 507MY



508M

NOTE: The Radiolettes 507-M and 508-M employ the same type of chassis and, as will be seen in the illustrations above, are, respectively, moulded and wooden cabinet models. The Radiolette 507-MY employs a slightly modified circuit arrangement. Both circuit diagrams appear in this booklet.

### ELECTRICAL SPECIFICATIONS.

#### FREQUENCY RANGE

Models 507-M, 508-M ..... 550-1600Kc. (545-187.5M)  
Model 507-MY ..... 540-1600Kc. (555-187.5M)

INTERMEDIATE FREQUENCY 455 Kc.

BATTERY ..... 4 volt Accumulator.

BATTERY CURRENT CONSUMPTION .... 0.8 Amp.

DIAL LAMP (1) ..... 2.0 volt, 0.06 Amp. M.E.S.

VIBRATOR CARTRIDGE ..... A.W.A. - OAK Synchronous  
Type V5278.

FUSE ..... 3 Amp. Cartridge.

#### VALVE COMPLEMENT—

- |                           |  |
|---------------------------|--|
| (1) 1A7GT Converter.      | (3) 1H5GT Detector, A.V.C. and A.F. Amplifier. |
| (2) 1P5GT I.F. Amplifier. |  |
| (4) 1Q5GT Power Output.   |  |

#### LOUDSPEAKER—

5 inch permanent magnet, V.C. Impedance—3 ohms at  
Code No. AC24. 400 C.P.S.  
Transformer—XA7. Undistorted Output—250  
milliwatts.

#### CONTROLS—

Combined ON/OFF Switch and Volume (left)—Tuning  
(right).

### MECHANICAL SPECIFICATIONS.

|                                     | Height          | Width            | Depth           |
|-------------------------------------|-----------------|------------------|-----------------|
| Cabinet Dimensions (inches):        |                 |                  |                 |
| Moulded .....                       | 7 $\frac{1}{8}$ | 11 $\frac{1}{4}$ | 5 $\frac{3}{4}$ |
| Wooden .....                        | 8               | 12 $\frac{1}{2}$ | 6 $\frac{1}{4}$ |
| Chassis Base Dimensions (inches) .. | 2               | 10 $\frac{1}{2}$ | 5 $\frac{1}{2}$ |
| Overall Chassis Height (inches) ..  | 6 $\frac{1}{4}$ |                  |                 |

|                                | Height                    | Width           | Depth |
|--------------------------------|---------------------------|-----------------|-------|
| Vibrator Power Unit Dimensions |                           |                 |       |
| (inches) .....                 | 4 $\frac{1}{8}$           | 3 $\frac{1}{8}$ | 3     |
| Weight (nett lbs.) .....       |                           |                 | 13    |
| Cabinet Colours:               |                           |                 |       |
| Moulded .....                  | Ivory, Jade Green, Walnut |                 |       |
| Wooden .....                   | Walnut                    |                 |       |

### ALIGNMENT PROCEDURE.

#### Manufacturer's Setting of Adjustments.

The receiver is tested by the manufacturer with precision instruments and all adjusting screws are sealed. Re-alignment should be necessary only when components in tuned circuits are repaired or replaced, or when it is found that the seals over the adjusting screws have been broken.

It is especially important that the adjustments should not be altered, unless in association with the correct testing instruments listed below.

Under no circumstances should the plates of the ganged tuning capacitor be bent, as the unit is accurately aligned during manufacture and cannot be re-adjusted unless by skilled operators using specialised equipment.

## CIRCUIT CODE

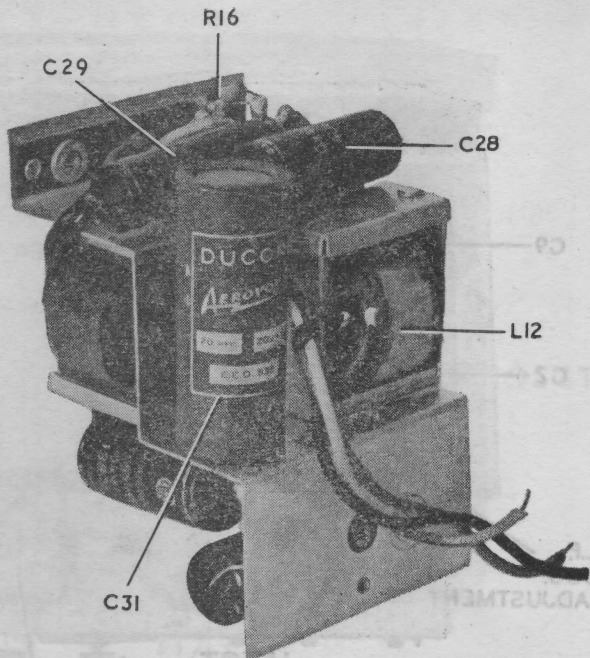
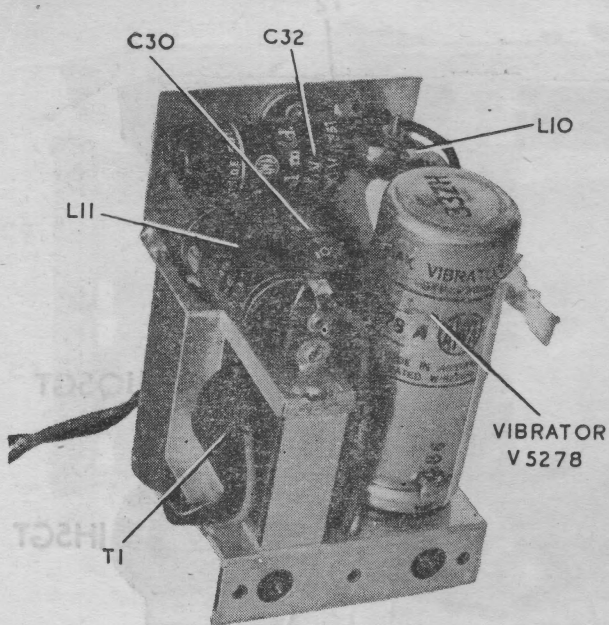
| Circuit Code No.   | Description                         | Stock Code or Part No. | Circuit Code No. | Description                     | Stock Code or Part No. | Circuit Code No.     | Description                     | Stock Code or Part No. |
|--------------------|-------------------------------------|------------------------|------------------|---------------------------------|------------------------|----------------------|---------------------------------|------------------------|
| <b>INDUCTORS.</b>  |                                     |                        |                  |                                 |                        | <b>RESISTORS.</b>    |                                 |                        |
| L1, L2             | Aerial coil                         | 7647                   | C17              | 0.1 uF paper, 400 V. working    | 228, 121               | R1                   | 1 megohm, $\frac{1}{2}$ watt    | 600, 341               |
| L3, L4             | 1st I.F. transformer                | 17645, 17640*          | C18              | 400 uF, 12 P.V. electrolytic    | EE10782                | R2                   | 0.2 megohm, $\frac{1}{2}$ watt  | 600, 327               |
| L5, L6             | 2nd I.F. transformer                | 17646, 17640*          | C19              | 400 uF, 12 P.V. electrolytic    | EE10782                | R3                   | 63,000 ohms, 1 watt             | 600, 517 or 600, 717   |
| L7, L8             | Oscillator coil                     | 7638                   | C20              | 100 uuF mica                    | 224, 261               | **R4                 | 2.5 megohms, $\frac{1}{2}$ watt | 600, 349               |
| L9                 | Smoothing choke                     | 19155                  | C21              | 100 uuF mica                    | 224, 261               | ††R4                 | 2.0 megohms, $\frac{1}{2}$ watt | 600, 347               |
| L10                | R.F. filter choke                   | 3149                   | C22              | 0.02 uF paper, 600 V. working   | 228, 307               | R5                   | 40,000 ohms, 1 watt             | 600, 513 or 600, 713   |
| L11                | R.F. filter choke                   | 13809                  | C23              | 200 uuF mica                    | 224, 267               | R6                   | 1.6 megohms, $\frac{1}{2}$ watt | 600, 345               |
| **L12              | Smoothing choke                     | 8321                   | C24              | 0.02 uF paper, 600 V. working   | 228, 307               | R7                   | 20,000 ohms, $\frac{1}{2}$ watt | 600, 307               |
| <b>CAPACITORS.</b> |                                     |                        | C25              | 0.0025 uF paper, 600 V. working | 228, 289               | R8                   | 0.5 megohm, volume control      | 19161                  |
| C1                 | 4 uuF mica                          | 224, 233               | C26              | 20 uF, 200 P.V. electrolytic    | ET10695                | **R9                 | 2 megohms, $\frac{1}{2}$ watt   | 600, 347               |
| C2                 | 12-430 uuF variable tuning (ganged) | 18280                  | **C27            | 0.25 uF paper, 400 V. working   | 228, 129               | ††R9                 | 10 megohms, 1 watt              | 600, 561 or 600, 761   |
| C3                 | 3-25 uuF variable                   | 19659                  | ††C27            | 0.4 uF paper, 400 V. working    | 228, 133               | R10                  | 1 megohm, 1 watt                | 600, 541 or 600, 741   |
| **C4               | 0.02 uF paper, 600 V.W.             | 228, 307               | **C28            | 0.05 uF paper, 400 V. working   | 228, 115               | R11                  | 1 megohm, $\frac{1}{2}$ watt    | 600, 341               |
| ††C4               | 0.05 uF paper, 400 V.W.             | 228, 115               | ††C28            | 0.02 uF paper, 600 V. working   | 228, 307               | R12                  | 16 ohms, 1 watt                 | BW1                    |
| C5                 | 0.05 uF paper, 400 V. working       | 228, 115               | **C29            | 0.05 uF paper, 400 V. working   | 228, 115               | R13                  | 25 ohms, 1 watt                 | BW1                    |
| **C6               | 440 uuF mica, $\pm 2\frac{1}{2}\%$  | 13212†                 | ††C29            | 0.02 uF paper, 600 V. working   | 228, 307               | R14                  | 22 ohms, 1 watt                 | BW1                    |
| ††C6               | 420 uuF mica, $\pm 2\frac{1}{2}\%$  | 13212†                 | C30              | 0.1 uF paper, 400 V. working    | 228, 121               | R15                  | 12 ohms, 1 watt                 | BW1                    |
| C7                 | 9 uuF mica                          | 13211†                 | C31              | 20 uF, 200 P. V. electrolytic   | EE0839                 | R16                  | 500 ohms, $\frac{1}{2}$ watt    | 600, 275               |
| C8                 | 3-25uuF air trimmer                 | 19659                  | **C32            | 0.1 uF paper, 400 V. working    | 228, 121               | ††R17                | 2000 ohms, 1 watt               | 600, 487 or 600, 687   |
| C9                 | 12-430 uuF variable tuning (ganged) | 18280                  | ††C32            | 0.4 uF paper, 400 V. working    | 228, 133               | ††R18                | 1600 ohms, $\frac{1}{2}$ watt   | 600, 285               |
| C10                | 50 uuF mica                         | 224, 555               | **C33            | 100 uuF mica                    | 224, 261               | <b>TRANSFORMERS.</b> |                                 |                        |
| C11                | 0.05 uF paper, 400 V. working       | 228, 115               |                  |                                 |                        | **T1                 | Vibrator                        | 17566                  |
| C12                | 70 uuF silvered mica                | 226, 460               |                  |                                 |                        | ††T1                 | Vibrator                        | 17568                  |
| C13                | 70 uuF silvered mica                | 226, 460               |                  |                                 |                        | T2                   | Loudspeaker                     | XA7                    |
| **C14              | 0.02 uF paper, 600 V. working       | 228, 307               |                  |                                 |                        | <b>SWITCHES.</b>     |                                 |                        |
| C15                | 70 uuF silvered mica                | 226, 460               |                  |                                 |                        | S1                   | ON/OFF (incorporated in R8)     |                        |
| C16                | 70 uuF silvered mica                | 226, 460               |                  |                                 |                        | <b>FUSES.</b>        |                                 |                        |
|                    |                                     |                        |                  |                                 |                        | FI                   | 3 Amp. cartridge                | 370, 011               |

\* Part number of winding only.

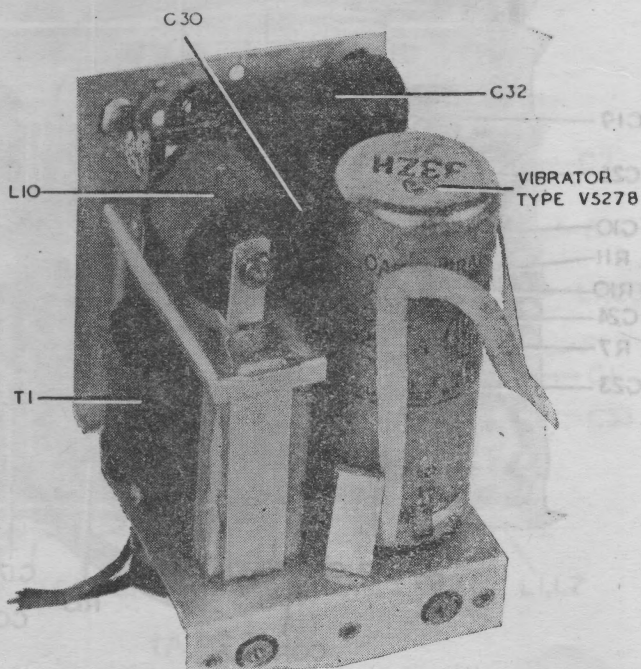
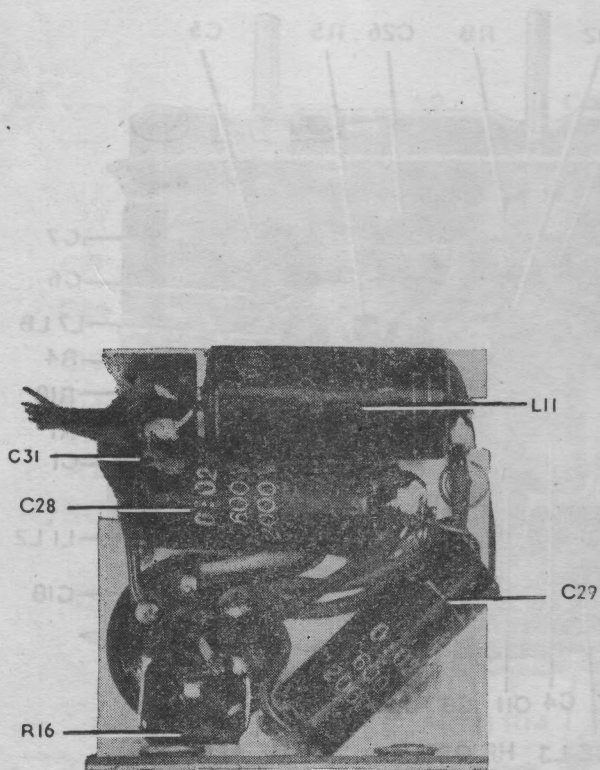
† Capacitance and tolerance (if shown) to be quoted.

\*\* 507-M and 508-M only.

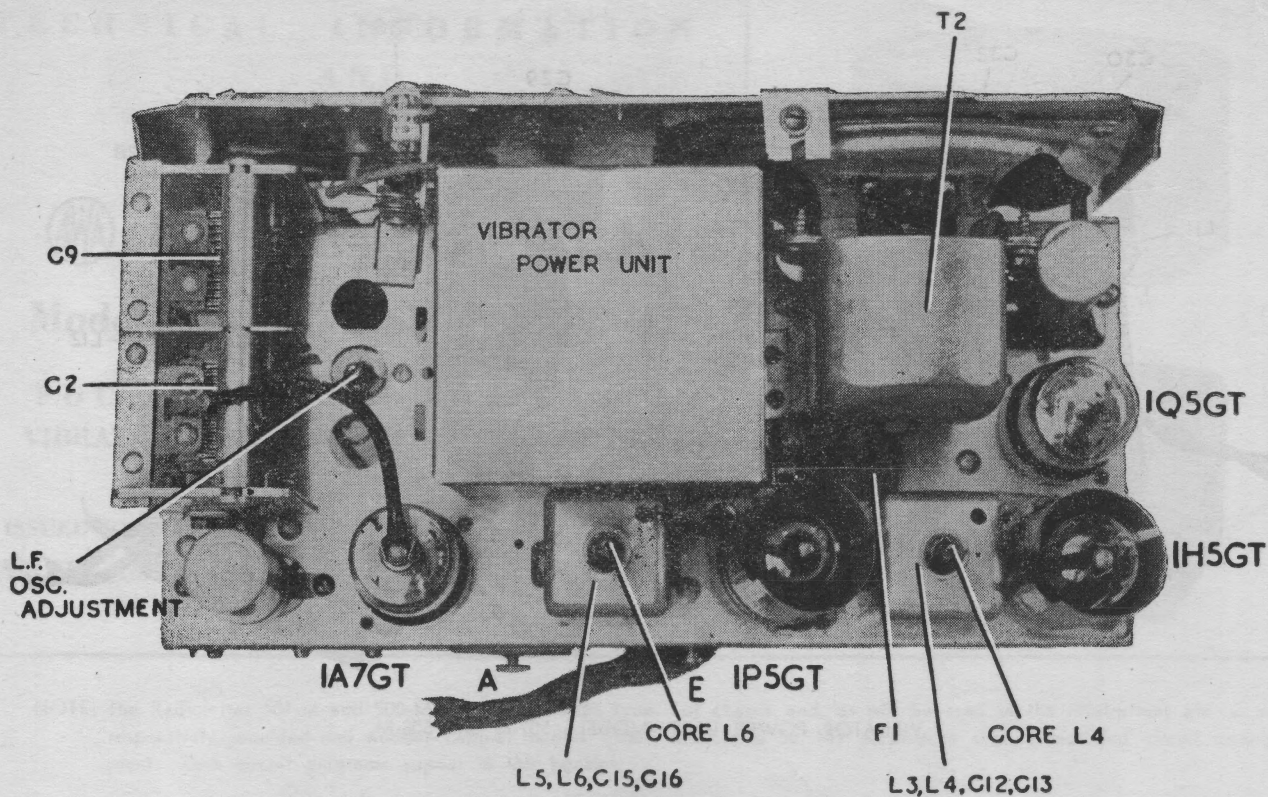
†† 507-MY only.



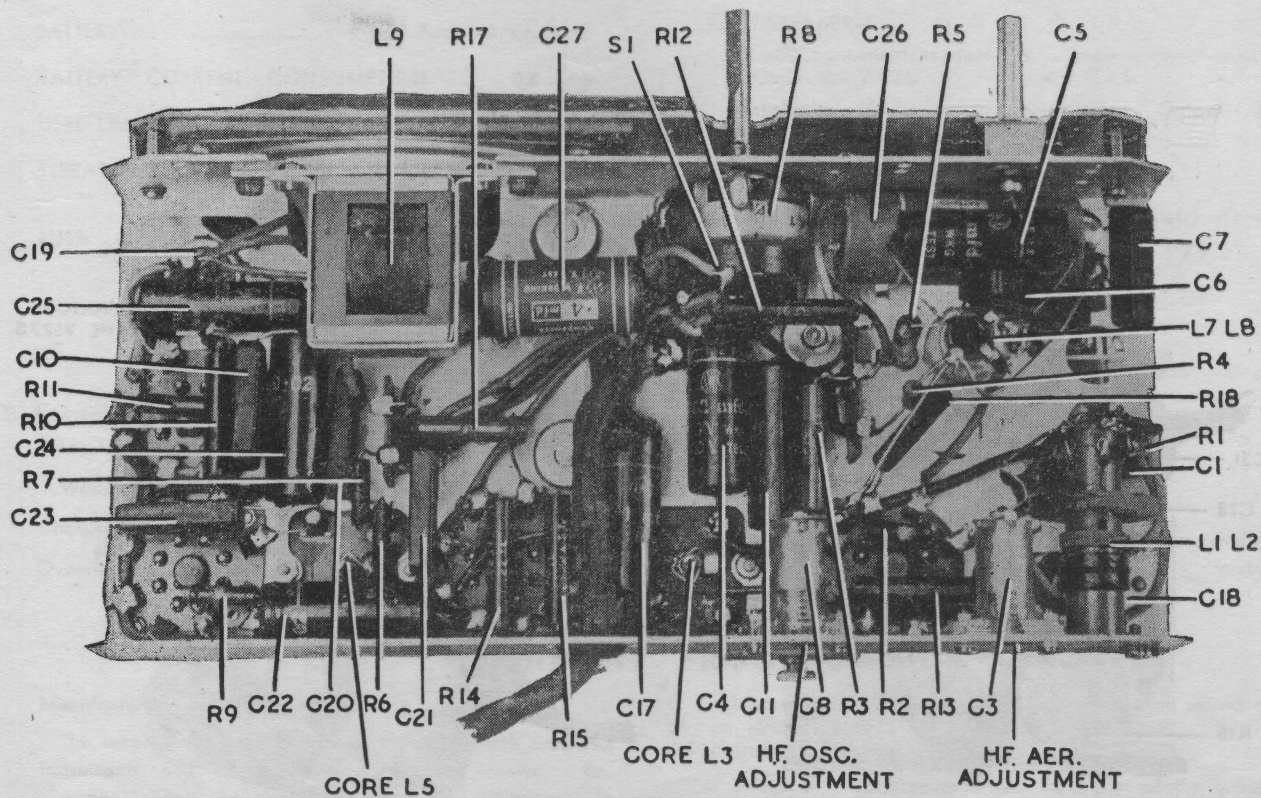
VIBRATOR POWER UNIT—MODELS 507-M and 508-M.



VIBRATOR POWER UNIT—MODEL 507-MY.



CHASSIS (TOP VIEW) MODEL 507-MY.



CHASSIS (UNDERNEATH VIEW) MODEL 507-MY.

For all alignment operations, connect the "low" side of the signal generator to the receiver chassis, and keep the generator output as low as possible to avoid A.V.C. action. Also, keep the volume control in the maximum clockwise position. The two R.F. alignment points, 600 kc. and 1500 kc. are marked on the right and left hand edges of the glass dial scale.

Testing Instruments.

- (1) A.W.A. Junior Signal Generator, type 2R3911.  
or
- (2) A.W.A. Modulated Oscillator, type J6726.

If the modulated oscillator is used, connect a 0.25 megohm non-inductive resistor across the output terminals.

(3) Output Meter.

The instrument recommended should have an output impedance of 12000 ohms and a range of 5-3000 milliwatts. The meter should be connected across the primary of the loudspeaker transformer with the voice coil of the loudspeaker open-circuit. The circuit may be broken by unsoldering one voice coil lead from the panel at the top of the loudspeaker.

If the output meter used is one which does not impress a load on the anode circuit of the output valve it will not be necessary to open-circuit the voice coil.

ALIGNMENT TABLE.

| Order  | Connect "high" side of Generator to: | Tune Generator to: | Tune Receiver Dial to: | Adjust for Maximum Peak Output. |
|--|--------------------------------------|--------------------|------------------------|---------------------------------|
| 1  | 1A7GT Grid*                          | 455 Kc.            | Below 550 Kc.†         | L6 Core                         |
| 2  | 1A7GT Grid*                          | 455 Kc.            | Below 550 Kc.†         | L5 Core                         |
| 3  | 1A7GT Grid*                          | 455 Kc.            | Below 550 Kc.†         | L4 Core                         |
| 4  | 1A7GT Grid*                          | 455 Kc.            | Below 550 Kc.†         | L3 Core                         |
| Repeat the above adjustments until the maximum output is obtained. |                                      |                    |                        |                                 |
| 5  | Aerial Terminal                      | 600 Kc.            | .6 Mc. Mark            | LF Osc. Adj. (L8 Core)‡         |
| 6  | Aerial Terminal                      | 1500 Kc.           | 1.5 Mc. Mark           | HF Osc. Adj. (C8)               |
| 7  | Aerial Terminal                      | 1500 Kc.           | 1.5 Mc. Mark           | HF Aer. Adj. (C3)               |
| Repeat adjustments 5, 6 and 7.                                     |                                      |                    |                        |                                 |

\* With grid clip connected. A .001 uF capacitor should be connected in series with the "high" side of the test instrument.

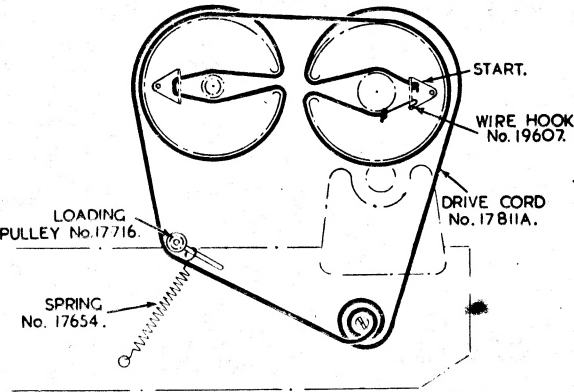
† Ganged tuning capacitor fully closed.

‡ Rock the Tuning Control back and forth through the signal and reset the dial pointer to the .6 Mc mark, if necessary, by turning it in the required direction whilst holding the tuning control knob.

Tuning Drive Cord Replacement.

To replace the drive cord it is first necessary to remove the front panel assembly by removing the dial pointer (it pulls straight off) and then the four mounting screws.

Disconnect the spring from the loading pulley. The diagram shows the route of the cord and the method of attachment. The cord is made from a 27½ inch cut length which allows for the knot at each end. When fitting, apply tension to the cord during the operation and use a pair of round nose pliers to bend the hook round the anchor plate to take up any slack. Place the loading pulley on the drive cord and replace the spring.



Chassis Removal.

First remove the control knobs and felt washers. Each knob is held by a set screw. Then, remove two screws from underneath the cabinet and withdraw the chassis.

Resetting the Dial Pointer.

Should the pointer become displaced it can be reset as follows:

- (1) First turn the tuning control knob clockwise until the pointer stops turning.
- (2) Then, whilst holding the tuning control firmly, turn the pointer with the other hand to bring it to a horizontal position.
- (3) Next tune a known local station and note any inaccuracy of the pointer in relation to the station.
- (4) Finally, again holding the tuning control firmly, turn the pointer sufficiently to correct the error.

Loudspeaker Service.

To remove the loudspeaker, first unsolder the connecting leads. Peel back the fret material backing to reveal the four mounting screws and unscrew these to remove the unit.

It is inadvisable to attempt loudspeaker repairs other than adjustment of the voice coil and replacement of the transformer. The fitting of a new cone should be done only by Service Departments suitably equipped to do the work.

To centre the voice coil, first remove the front dust cover by carefully cutting around the inside of the voice coil with a sharp knife. Loosen the suspension screws, insert three narrow paper "feelers" in the gap and retighten the suspension screws. The "feelers" should be approximately 3/16 inch wide and 0.006 inch thick.

Test the loudspeaker, and, if satisfactory, fasten a replacement dust cover, part number 7848, in place with latex rubber cement.

SOCKET VOLTAGES AND CURRENTS

| Valve.                          | Bias<br>Volts. | Screen Grid<br>to Chassis<br>Volts. | Anode to<br>Chassis<br>Volts. | Anode Current<br>mA. | Filament<br>Volts. |
|---------------------------------|----------------|-------------------------------------|-------------------------------|----------------------|--------------------|
| 1A7GT Converter .....           | 0              | 40                                  | 90                            | 0.4                  | 1.3—1.4            |
| Oscillator .....                | —              | —                                   | 55                            | 0.8                  | —                  |
| IP5GT I.F. Amplifier .....      | 0              | 90                                  | 90                            | 1.5                  | 1.3—1.4            |
| IH5GT Detector .....            | 0              | —                                   | 35*                           | 0.06                 | 1.3—1.4            |
| IQ5GT Output .....              | —4.5           | 90                                  | 85** 100†                     | 8.0** 9.0†           | 1.3—1.4            |
| Total Battery Current —0.8 Amp. |                |                                     |                               |                      |                    |

Measured with no signal input. Volume Control-Battery Switch maximum clockwise.  
\* This reading may vary, depending on the resistance of the voltmeter used.  
\*\* 507-M and 508-M only.  
† 507-MY only.

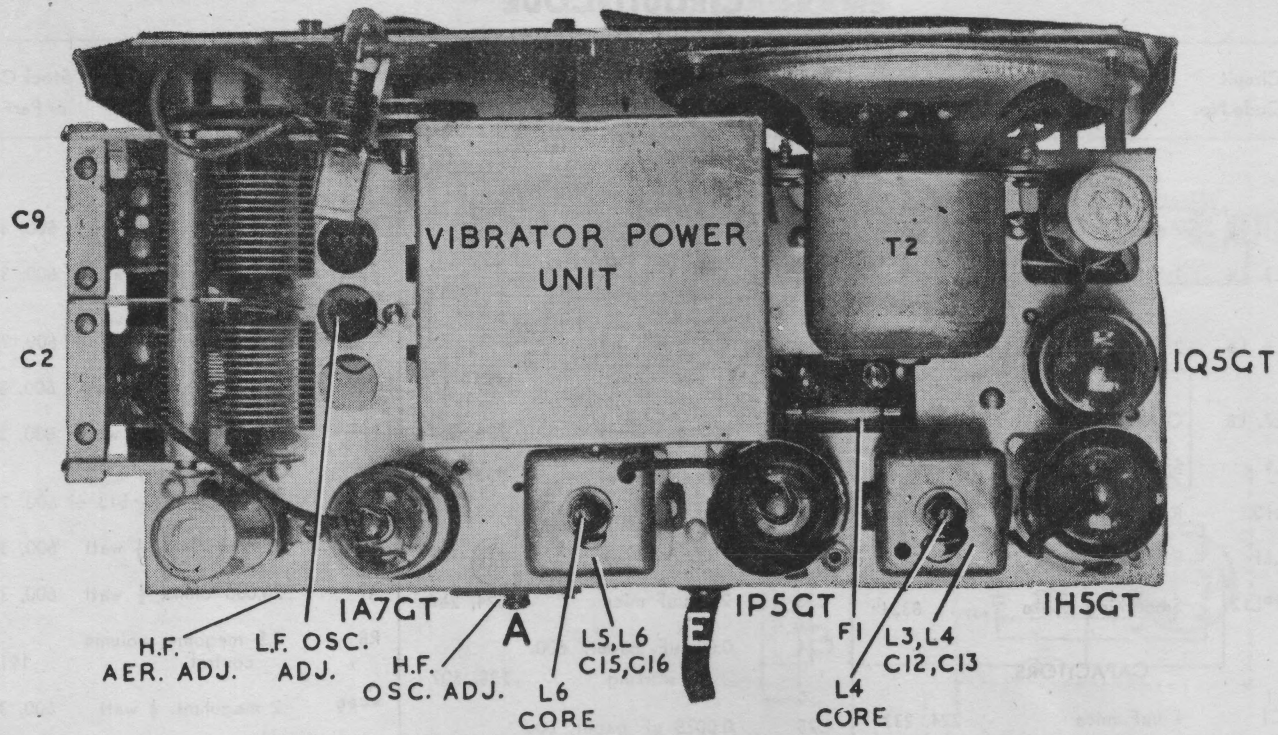
D.C. RESISTANCE OF WINDINGS.

| Winding                                 | D.C. Resistance in ohms |
|---|-------------------------|
| Aerial Coil                             |                         |
| Primary (L1)                            | 9.5                     |
| Secondary (L2)                          | 3.5                     |
| Oscillator Coil                         |                         |
| Primary (L7)                            | 2                       |
| Secondary (L8)                          | 6.5                     |
| I.F. Transformer Windings               | 7.5                     |
| Loudspeaker Input Trans-<br>former (T2) |                         |
| Primary                                 | 650                     |
| Secondary                               | *                       |
| Vibrator Transformer                    |                         |
| Primary                                 | *                       |
| Secondary                               | 500                     |
| Smoothing Choke (L9)                    | *                       |
| R.F. Filer Choke (L10)                  | *                       |
| R.F. Filter Choke (L11)                 | 9                       |
| Smoothing Choke (L12)                   | 200                     |

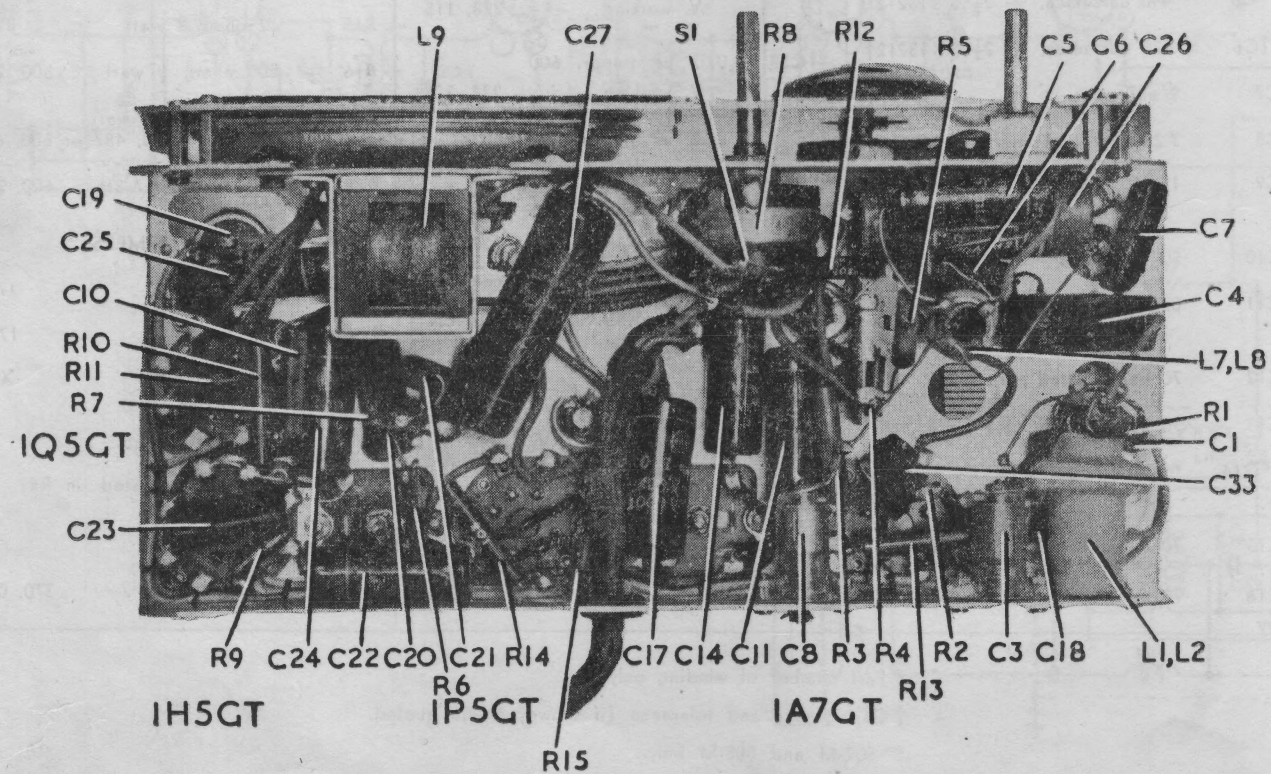
The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations, and it should not be assumed that a component is faulty if a slightly different reading is obtained.  
\* Less than 1 ohm.

MECHANICAL REPLACEMENT PARTS.

| Item.                               | Part No. | Item.                              | Part No. |
|-------------------------------------|----------|------------------------------------|----------|
| Arm, pulley .....                   | 17719    | Drive Cord .....                   | 17811A   |
| Aerial Terminal Assembly .....      | 17717    | Drum, drive .....                  | 17627    |
| Bracket, ganged capacitor mtg.:     |          | Drum, pointer .....                | 17626    |
| Front .....                         | 17619    | Dust cover, loudspeaker .....      | 7848     |
| Rear .....                          | 17620    | Hook, drive cord .....             | 19607    |
| Bracket, tuning drive spindle ..... | 17648    | Knob .....                         | 17603    |
| Cabinet .....                       | C62      | Plate, tuning drive mounting ..... | 17621    |
| Clamp, dial scale .....             | 17720    | Panel, fuse .....                  | 19158    |
| Clip, grid .....                    | 7459     | Pointer, dial .....                | 17602    |
| Clip, horseshoe .....               | 2524     | Pulley, loading .....              | 17716    |
| Cloth, loudspeaker fret .....       | 17608    | Socket, valve .....                | 4704     |
| Cone Assembly, loudspeaker .....    | 8330     | Spindle, pointer .....             | 17625    |
| Dial Scale —                        |          | Spindle, tuning drive .....        | 17647    |
| 507-M, 508-M .....                  | 17656    | Spring, iron core locking .....    | 3091     |
| 507-MY .....                        | 20287    | Spring, loading, drive cord .....  | 17654    |
|                                     |          | Strap, chassis mounting .....      | 17634    |

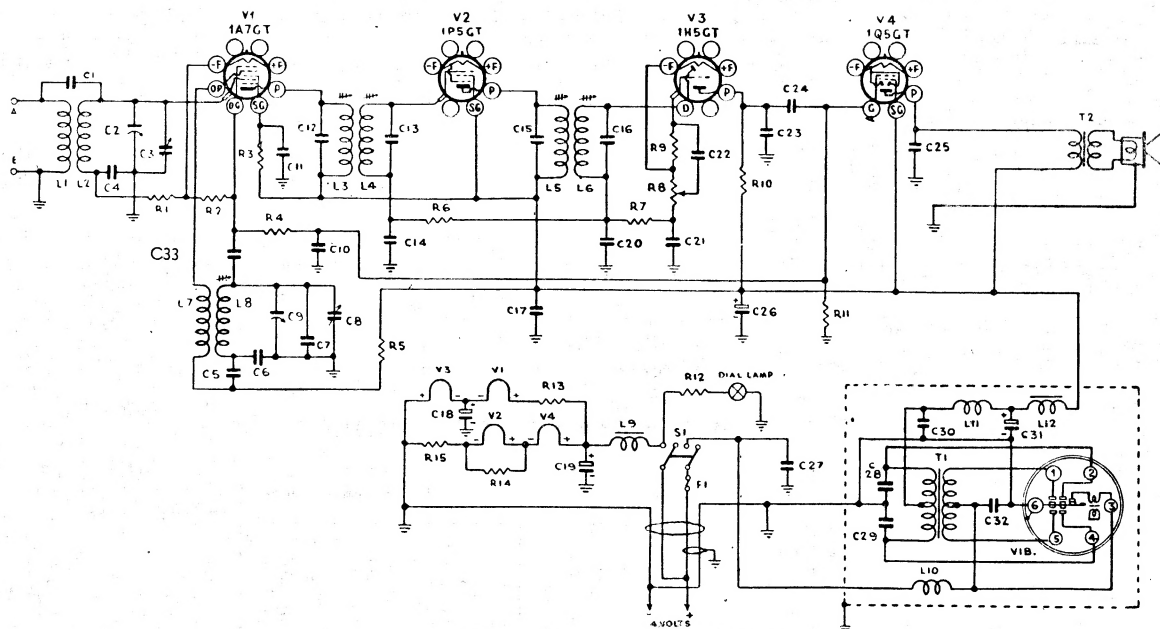


CHASSIS (TOP VIEW) MODELS 507-M and 508-M.



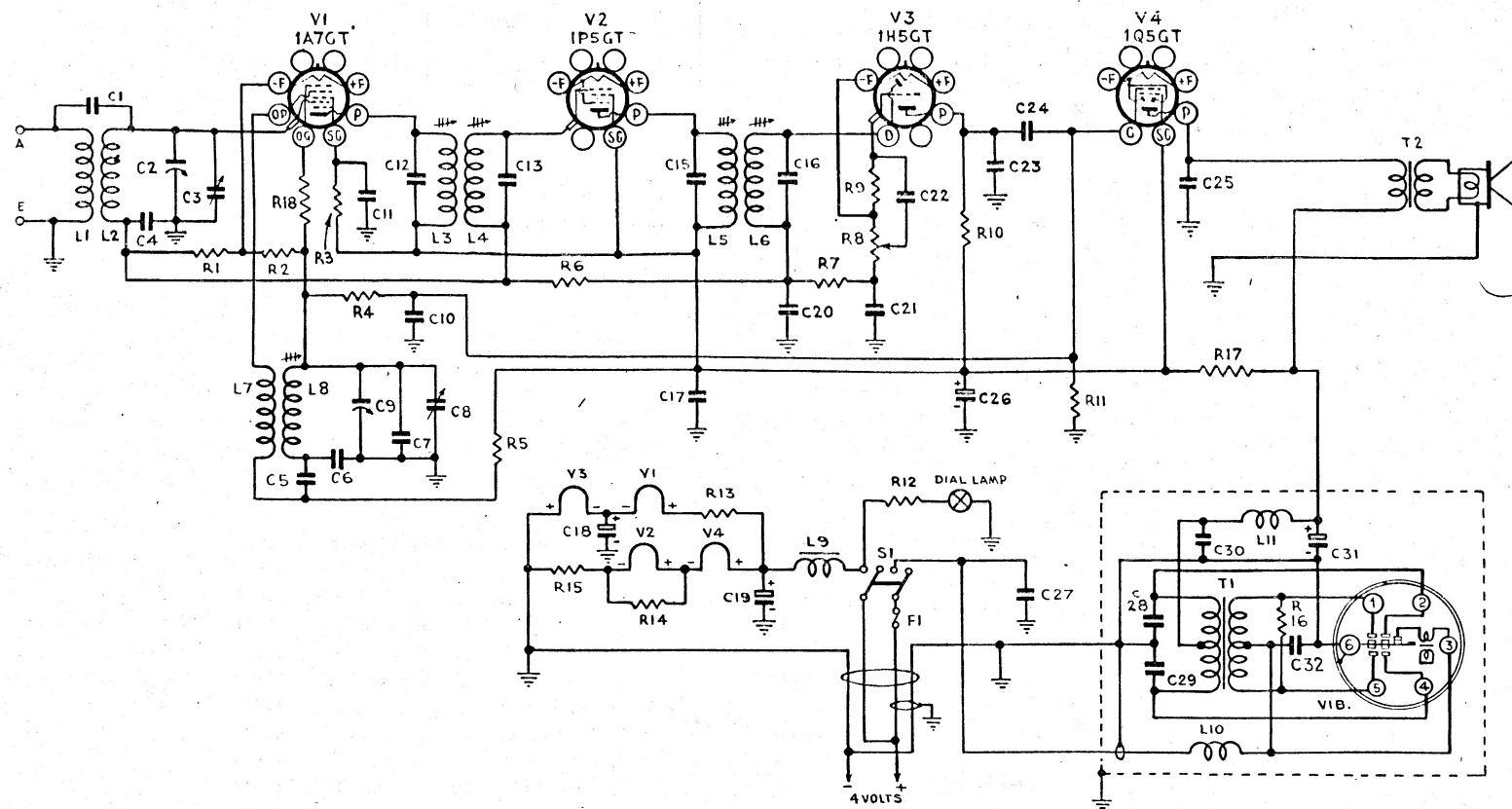
CHASSIS (UNDERNEATH VIEW) MODELS 507-M and 508-M.

# CIRCUIT DIAGRAMS



NOTE: R16, which is not shown, is connected between pins 1 and 5 of the vibrator.

MODELS 507-M and 508-M:



MODEL 507-MY.